JUL 1 3 2005

WATER PROTECTION PROGRAM

East Yellow Creek Recreational Use Attainability Analysis

July 2005

Prepared for:

UAA Review Committee
Water Quality Monitoring & Assessment Section
Water Protection Program
MISSOURI DEPARTMENT OF NATURAL RESOURCES
1101 Jefferson

Jefferson City, MO 65102-0176

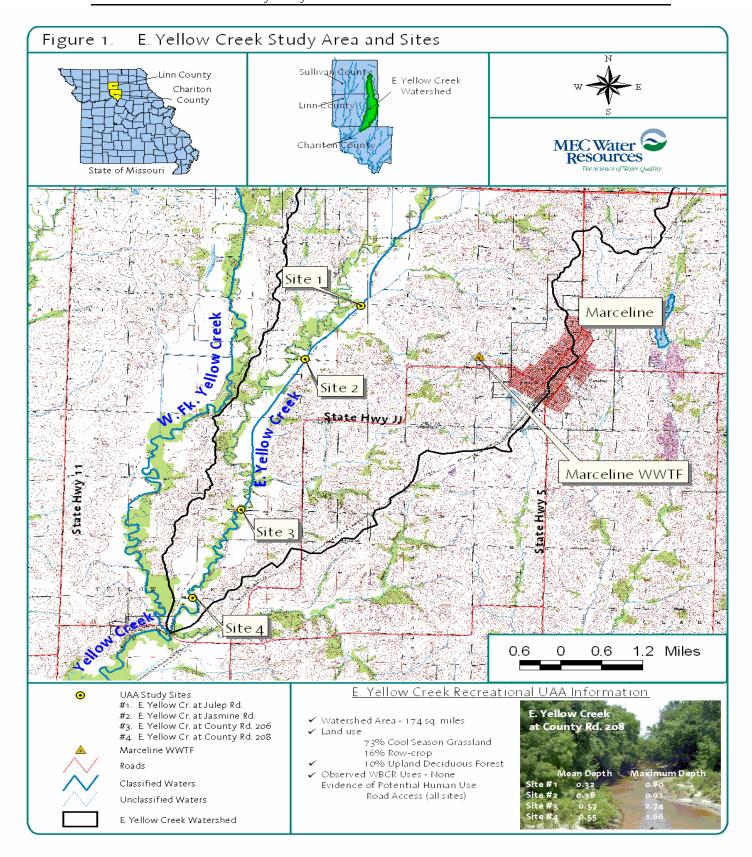
Prepared by:
MEC WATER RESOURCES, INC.
1000 North College Avenue, Suite 4
Columbia, Missouri 65201

Data Sheet A - Water Body Identification

WATER THE THE PROBLEM TO STATE OF THE PROBLEM TO STATE Water Body Name: East Yellow Creek (from USGS 7.5' quad) 8-digit HUC: 10280103 Missouri WBID # 0597 County: Linn, Chariton Upstream Legal Description: NW 1/4 of NW 1/4 of Section 30, Township 57N, Range 18W Downstream Legal Description: SW 1/4 of SE 1/4 of Section 17, Township 56N, Range 19W Upstream Coordinates: 39.71978 latitude, -92.96975 longitude (USG 84, ddd,dddd) Downstream Coordinates: 39.66021 latitude, -93.04710 longitude (USG 84, ddd,dddd) Discharger Facility Name(s): Marceline WWTF Discharger Permit Number(s): MO0039721 Number of Sites Evaluated: 4 Name of Surveyor and Telephone Number: David Carani/573-443-4100 Organization: MEC Water Resources Position: Water Quality Specialist

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: ____Date: 6/28/05



Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID#: 🔎	597		Site Location Description:				
Site GPS Coordinates:	31.73273/-	93.00165	Site	Jules Rons BR	idae Cessina		
Date & Time: 6/28/05 7:00			Facility Name: Marceline WWTF				
Personnel: DC	SW .		Permit Number: 10 0039721				
Current Weather Conditions: Cloudy 80°F			Weather Conditions for Past 7 days: Hot day				
Photo Ids: Upstream:	Do	wristream: 5	Othe	1:1,2 3(teash) 6	(1057 6WK). 7 (et		
				7			
es Observed*:	· · ·		<u> </u>		<u></u>		
☐ Swimming	☐ Skin diving	□ SC	UBA diving	☐ Tubing	☐ Water skiing		
☐ Wind surfing	☐ Kayaking	☐ Boa	ting	☐ Wading	☐ Rafting		
☐ Hunting	☐ Trapping	_ □ Fish		☐ None of the above	☑ Other:		
Describe: (include numb	er of individuals re Shot	gun shell	sacy of use, photo s + Gaoke	cu clay pigeous	of recreational uses, etc.)		
Describe: (include num)	er of individuals re	creating, frequency shell	incy of use, photo 6 + Gaoke	-documentation of evidence	of recreational uses, etc.)		
rrounding Condition	Shote	gun shell	s + baoki	ses. Attach photos of eviden	(pics 1+2)		
rrounding Condition	Shote	promote or imp	s + baoki	on clay pigeons	(pics 1+2)		
rrounding Condition as of interest.)	Shote	promote or imp	ede recreational u	uses. Attach photos of eviden	(pics +2)		
rrounding Condition as of interest.) □ City/county parks	Shote IS*: (Mark all that)	promote or imp	servation lands	uses. Attach photos of evidence	nce or unusual		
rrounding Condition as of interest.) City/county parks Boating accesses No trespass sign	Shote Sket Sk	promote or imp	servation lands	uses. Attach photos of evidence Urban areas	nce or unusual		
rrounding Condition as of interest.) City/county parks Boating accesses No trespass sign	Shote Shote Shote Playgrounds State parks Fence	promote or imp MDC con National i	servation lands	uses. Attach photos of evidence Urban areas	nce or unusual		
rrounding Condition as of interest.) City/county parks Boating accesses No trespass sign idence of Human Us	Shote Shote Shote Playgrounds State parks Fence	promote or imp	servation lands	uses. Attach photos of evidence. Urban areas Nature trails Other:	(pics +2) nce or unusual □ Campgrounds □ Stairs/walkway		

^{*}Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Page Two - Data Sheet B for WBID # 0597: Sitc 1 Stream Morphology: Upstream View Physical Dimensions: Max. Depth (ft): Width (ft): Length (ft): Avg, Depth (ft): ☐ Riffle Width (ft): Length (ft): Avg. Depth (ft): Max, Depth (ft): □ Run Max. Depth (ft): Width (ft): Length (ft): Avg. Depth (ft): ☐ Pool Estimated (ft³/sec): 8.18 **⊠** Flow Present? ✓ Yes □ No Downstream View Physical Dimensions: Width (ft): Length (ft): Max. Depth (ft): Avg. Depth (ft): ☐ Riffle Width (ft): Length (ft): Avg. Depth (ft): Max. Depth (ft): ☐ Run Width (ft): Length (ft): Avg. Depth (ft): Max. Depth (ft): ☐ Pool Estimated (ft³/sec): Above **⊠** Flow Present? 🗷 Yes □ No SEE Substrate*: (These values should add up to 100%.) % Mud/Clay % Bedrock % Cobble 5 % Gravel % Sand % Silt Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site) NONE Water Characteristics*: (Mark all that apply.) Odor: □ Sewage ☐ Musky □ Chemical □ None ☐ Other: Color: ☐ Green ☐ Grav ☐ Milky ☐ Other: Bottom Deposit: ☐ Sludge □ Solids ☐ Fine sediments 🔼 None ☐ Other: Surface Deposit: □ Oil ☐ Scum ☐ Foam X None □ Other: Comments: Please attach additional comments (including information from interviews) to this form. *This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use. I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Date:

Position:

Signed:

Organization: MEC Water Resources Inc.





Figure 3. East Yellow Creek Site 1 Upstream View



Mean depth along a 1200 ft. assessment reach was 0.32 ft as determined from 10 transects (Appendix B). The maximum depth observed at this location was .8 feet. MEC staff measured streamflow as 8.18 cfs at the bridge.

MEC staff did not observe any direct or indirect evidence of WBCR at Site 1. MEC staff did observe trash in the form of old tires and boxes that were likely dumped from the bridge (Figure 3). Additionally, spent shotgun shells and broken clay targets were observed on the stream bank.

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID#:	597			Site Location Description:						
Site GPS Coordinates:		93.01673	Site	2	JASMINE ROAD	Beidge Crossing				
Date & Time: 6/28/6	5 84		Facility Na	Site 2 JASMINE ROAD BRIDGE CROSSING Facility Name: Marceline WWTF						
Personnel:	DW			Permit Number: Mo 0039721						
Current Weather Conditi	ons: cloudy	85°	Weather Co	Weather Conditions for Past 7 days:						
Photo Ids: Upstream:	8 box	wnstream:	9	Other: 10, 11						
Uses Observed*:										
□ Swimming	☐ Skin diving	. □ s	CUBA diving		☐ Tubing	☐ Water skiing				
☐ Wind surfing	☐ Kayaking	D	cating		□ Wading	☐ Rafting				
☐ Hunting	☐ Trapping	□F	shing		None of the above	☐ Other:				
Surrounding Condition items of interest.)	urrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual									
☐ City/county parks	☐ Playgrounds	☐ MDC e	onservation lane	ıdş	Urban areas	☐ Campgrounds				
☐ Boating accesses	☐ State parks	tate parks			☐ Nature trails	☐ Stairs/walkway				
☐ No trespass sign	☐ Fence	opes	☐ Other:							
Evidence of Human Use	vidence of Human Use*:									
Roads CROSSING	☐ Foot paths/pri	nts 🗆	Dock/platform		☐ Livestock Watering	☐ RV / ATV Tracks				
☐ Rope swings	☐ Camping Sites		Fire pit/ring		☐ NPDES Discharge	FR Disting Tradels				
☐ Other:						Fishing Tackle				

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Page Two - Data Sheet B for WBID # 0597 : Site 2

□ Riffle Widt	ı (ft);	Length (ft):	Avg. Depth	ı (ft):	Max. De	pth (ft):	
□ Run Widt	ı (ft):	Length (ft):	Avg. Depth	ı (ft):	Max. De	pth (ft):	
□ Pool Widt	ı (ft):	Length (ft):	Avg. Depth	(ft):	Max. De	oth (ft):	
Flow Prese	nt? 🗷 Yes	□ No	Estimated (ft ³ /sec):	8.55		
Downstream V	iew Physical	Dimensions:					
□ Riffle Widt		Length (ft):	Avg. Depth	(ft):	Max. Dej	oth (ft):	
□ Run Widt	ı (ft):	Length (ft):	Avg. Depth	(ft):	Max. Dej	oth (ft):	
□ Pool Widt	(ft):	Length (ft):	Avg. Depth	(ft):	Max. Dep	oth (ft):	
Flow Prese	nt? D≸Yes	□ No	Estimated (ft³/sec):	SEE	Above	
		/ (Calabara 1) Calabara 1	0/ 03	0/ Cil+ [% Mud/Cla	1	0/ Dedroot
NonE iter Characteri	n*: (note amo	all that apply.)	% Sand algal growth at the ass				78 Dewoca
uatic Vegetatio	n*: (note amo	unt of vegetation or		,	□ Other:	·····	78 Bewock
uatic Vegetatio None iter Characteri Odor: Color:	n*: (note amo	unt of vegetation or all that apply.)	algal growth at the ass	essment site)		· · · · · · · · · · · · · · · · · · ·	78 Bewock
uatic Vegetatio	n*: (note amo stics*: (Mark	unt of vegetation or all that apply.) Musky	algal growth at the ass	essment site)	□ Other:	· · · · · · · · · · · · · · · · · · ·	% Bedrock
uatic Vegetatio None iter Characteri Odor: Color:	n*: (note amo stics*: (Mark ☐ Sewage	unt of vegetation or all that apply.) ☐ Musky ☐ Green	□ Chemical	essment site) None Milky	□ Other:		78 BEWO
uatic Vegetation Non-E Iter Characteric Odor: Color: Bottom Deposit: Surface Deposit: In ments: Please is information is no prehensive underst sion on the recreation	stics*: (Mark Sewage Clear Sludge Oil attach additi	all that apply.) Musky Green Solids Scum Onal comments ely for removal of a conditions. Conse but may point to comment to the best of	☐ Chemical☐ Gray☐ Fine sediments	Milky Mone Milky Mone None None ion from intended in the second intended intended in the second intended in	Other: Other: Other: Other: other: that effect another	is form. more luence a er use.	



Figure 5. East Yellow Creek Site 2 Downstream View

Site 3. Road 206 Bridge Crossing (39.68226, -93.03448) 6.43 Miles from WWTF The riparian area is generally wider at Site 3 than that at Sites 1 or 2 and consists of larger trees, thick brush, and some grassy areas (Figure 6). The stream banks at Site 3 are somewhat steep and covered with rocks, brush, and downed trees (Figure 7). Stream substrate consisted of mostly sand with some mud and clay.

Mean depth along a 700 ft. assessment reach was 0.57 feet as determined from 11 transects (Appendix B). The maximum depth observed at this location was 2.74 feet in a pool downstream of the road access. Measured streamflow was 11.21 cfs.



Figure 6. East Yellow Creek Site 3 Downstream View

MEC Water Resources, Inc.

East Yellow Creek

Recreational Use Attainability Analysis

MEC staff believe that WBCR is neither an existing or an attainable use at this site based on limited access to the stream imposed by steep slopes, absence of observed WBCR uses, and low flow shallow conditions.

Site 2. Jasmine Road Bridge Crossing (39.71887, -93.01673) 3.61 Miles from WWTF

The stream banks near the road are steeply sloping and are covered with low-growing brush and rocks (Figure 4). Riparian areas are vegetated by the upland deciduous forest complex and row crop agriculture. The stream channel was observed to be mostly sand with some cobble and gravel (Figure 5).

Mean depth along a 900 ft. assessment reach was 0.38 ft. as determined from 11 transects (Appendix B). The maximum depth observed at this location was .91 ft. in a small pool downstream of the road access. Flow was measured as 8.55 cfs.

There were no direct human uses observed at this site. No individuals were seen or found to be available for interviews near the bridge crossing at the time of the survey. A fishing line hanging from the bridge was the only evidence of human use.

MEC staff concludes that WBCR is neither an existing or an attainable use at this site based on absence of observed recreational uses, low flow shallow conditions and difficult stream access imposed by steeply sloping banks.



Figure 4. East Yellow Creek Site 2 Right Bank

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID#: 0	597		Site Location	Description:				
Site GPS Coordinates:	39, 68226/-	93 03446	Site 3	Road 20	6 BRIG	due Cessina		
Date & Time: 6/28/6	5 1300			Facility Name: Marceline WWTF				
Personnel: DC DW Permit Number: 40 0034721								
Current Weather Conditions: Cloudy 90 Weather Conditions for Past 7 days: Hot dev								
Photo Ids: Upstream:								
Uses Observed*:	Υ=				· · · · ·			
☐ Swimming	☐ Skin diving	□ sc	UBA diving	☐ Tubing		☐ Water skiing		
☐ Wind surfing	☐ Kayaking	□ Bo	ating	☐ Wading		Rafting		
☐ Hunting	☐ Trapping	Fis	· • · · · · · · · · · · · · · · · · · ·	₩ None of		of recreational uses, etc.)		
		•						
Surrounding Condition	18*: (Mark all that p	promote or im	pede recreations	l uses. Attach pho	tos of evide	nce or unusual		
•	is*: (Mark all that p	· · · · · · · · · · · · · · · · · · ·	pede recreations	<u> </u>		nce or unusual		
tems of interest.)	<u> </u>	· · · · · · · · · · · · · · · · · · ·	nservation lands	<u> </u>	eas			
tems of interest.) □ City/county parks	☐ Playgrounds	☐ MDC co	nservation lands	☐ Urban are	eas	☐ Campgrounds		
tems of interest.) City/county parks Boating accesses	☐ Playgrounds ☐ State parks ☐ Fence	☐ MDC co	nservation lands	☐ Urban are	eas	☐ Campgrounds		
citems of interest.) ☐ City/county parks ☐ Boating accesses ☑ No trespass sign	☐ Playgrounds ☐ State parks ☐ Fence	☐ MDC co☐ National SX Steep slo	nservation lands	☐ Urban are	eas nils	☐ Campgrounds		
tems of interest.) ☐ City/county parks ☐ Boating accesses ☑ No trespass sign Evidence of Human Use	☐ Playgrounds ☐ State parks ☐ Fence	☐ MDC co☐ National	nservation lands forests pes	☐ Urban are ☐ Nature tra	eas nils Watering	☐ Campgrounds ☐ Stairs/walkway		

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Page Two - Data Sheet B for WBID # 0597 : Site 3

□ Riffle Widt	h (ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	
□ Run Widt	h (ft);	Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	
□ Pool Widt	h (ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	.,,
⊠ Flow Press	nt? 🖼 Ye	i □ No	Estimated (ft³/sec):	11.2(
ownstream V	iew Physica	I Dimensions:				
Riffle Widt	h (ft):	Length (ft);	Avg. Depth	(ft):	Max. Depth (ft):	
Run Widt	n (ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth (ft);	
Pool Widt	n (ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	
Flow Prese	nt? BUYes	□ No	Estimated (ft ³ /sec):	SEE Above	
% Cobb atic Vegetatio		% Gravel 45	% Sand algal growth at the ass	% Silt essment site)	5 % Mud/Clay	% Bec
atic Vegetatio	n*: (note amo	ount of vegetation or		·		% Bec
atic Vegetatic	n*: (note amo	ount of vegetation or		·		% Bec
er Characteri	n*: (note amo	ount of vegetation or	algal growth at the ass	essment site)		% Bec
er Characteri	n*: (note amo stics*: (Mark □ Sewage	eall that apply.)	algal growth at the ass	essment site)	□ Other:	% Bec
er Characteridor:	stics*: (Mark ☐ Sewage ☐ Clear ☐ Sludge	all that apply.) Musky Green Solids	☐ Chemical ☐ Gray ☐ Fine sediments	E None ☐ Milky None	□ Other: □ Other: □ Other:	% В
er Characteriodor: color: cottom Deposit: urface Deposit:	stics*: (Mark ☐ Sewage ☐ Clear ☐ Sludge ☐ Oil	all that apply.) Musky Green Solids	☐ Chemical ☐ Gray ☐ Fine sediments ☐ Foam	EN None Milky None None	□ Other:	% Be
er Characteriodor: color: cottom Deposit: urface Deposit: ments: Please information is no chensive underst on on the recreati	stics*: (Mark Sewage Sclear Sludge Oil attach addit to be used so anding of wate on use analysis, hereby affi	all that apply.) Musky Green Solids Scum ional comments (lely for removal of a r conditions. Consect but may point to co	☐ Chemical ☐ Gray ☐ Fine sediments ☐ Foam ☐ including informate recreational use designmently, this information ditions that need furth	None Milky None Milky None None ion from interpretation but raisen is not interpretation for interpretation for interpretation is not interpretation.	☐ Other: ☐ Other: ☐ Other: ☐ Other:	





MEC staff did not observe any WBCR uses at Site 3. All terrain vehicle tracks were observed on the stream bank near the upstream section of the assessment reach. In addition to the steep bank slopes, "No Trespassing" signs were posted on land adjacent to the stream and near the access point.

MEC staff concludes that WBCR is neither an existing nor an attainable use at this site based on the low flow shallow conditions and the lack of observed WBCR uses.

Site 4. Road 208 Bridge Crossing (39.66021, -93.04710) 8.88 Miles from WWTF The stream banks near the crossing at Road 208 are steeply sloping and lightly vegetated (Figure 8). Riparian areas are vegetated by upland deciduous forest and row crop agriculture. The stream channel was observed to be mostly sand with some cobble and gravel. A large pool was present downstream from the bridge and was likely due to the logjam that stretched across the stream beneath the bridge (Figures 9 and 10).

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID#: 05	767		Site Location Description:						
Site GPS Coordinates:	* *	3.04710	Site 4 ROND 208 Beidge Caussing						
,		-	Facility Name:						
Personnel: DC	729-3			Permit Number:					
J	Current Weather Conditions: 85°			Weather Conditions for Past 7 days: Hot + Dev					
Photo Ids: Upstream;			3 0th	er: 14 15-6anks	16 - Loa jam				
Uses Observed*:									
☐ Swimming	☐ Skin diving	□ scu	JBA diving	☐ Tubing	☐ Water skiing				
☐ Wind surfing	☐ Kayaking	☐ Boa	ting	☐ Wading	☐ Rafting				
☐ Hunting	☐ Trapping	☐ Fish	ing	None of the above	Other:				
Surrounding Condition items of interest.)	s*: (Mark all that p	promote or imp	ede recreational	uses. Attach photos of evider	ace or unusual				
☐ City/county parks	☐ City/county parks ☐ Playgrounds ☐ MI		servation lands	☐ Urban areas	☐ Campgrounds				
☐ Boating accesses	☐ Boating accesses ☐ State parks ☐ National f			☐ Nature trails	☐ Stairs/walkway				
☐ No trespass sign	□ No trespass sign □ Fence			☐ Other:					
Evidence of Human Use	vidence of Human Use*:								
☐ Roads	☐ Foot paths/prin	nts 🗆 Do	ck/platform	☐ Livestock Watering	☐ RV / ATV Tracks				
☐ Rope swings	☐ Camping Sites	☐ Fir	e pit/ring	☐ NPDES Discharge	☐ Fishing Tackle				
☑ Other: No EV	idence of	hunn w	se						

^{*}Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Site 4 Page Two - Data Sheet B for WBID # 0597 : Stream Morphology: **Upstream View Physical Dimensions:** Avg. Depth (ft): Max. Depth (ft): Width (ft): Length (ft): Max. Depth (ft): Width (ft): Length (ft): Avg. Depth (ft): □ Run Max. Depth (ft): Length (ft): Avg, Depth (ft): Width (ft): ☐ Pool 8.**9**5 Estimated (ft³/sec): Flow Present? X Yes □ No **Downstream View Physical Dimensions:** Width (ft): Max. Depth (ft): Length (ft): Avg. Depth (ft): □ Riffle Length (ft): Avg. Depth (ft): Max. Depth (ft): Width (ft): ☐ Run Length (ft); Avg. Depth (ft): Max, Depth (ft); Width (ft): Pool Estimated (ft³/sec): Above Flow 🗷 Yes Present? □ No Substrate*: (These values should add up to 100%.) % Cobble 5 % Gravel 95 % Sand % Silt % Mud/Clay % Bedrock Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site) NONE Water Characteristics*: (Mark all that apply.) Odor: ☐ Musky □ Sewage ☐ Chemical Mone None Other: Color: ☐ Other: ☑ Clear ☐ Green ☐ Gray ☐ Milky Bottom Deposit: Other: ☐ Sludge ☐ Solids ☐ Fine sediments X None Surface Deposit: ☐ Scum □ Foam ☑ None ☐ Other: Comments: Please attach additional comments (including information from interviews) to this form. *This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use. I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate. MEC Water Resources, Inc. Position: Field Technician

Signed:



Figure 10. East Yellow Creek Site 4 Logjam Under Bridge

Mean depth along a 960 ft. assessment reach was 0.55 ft. as determined from 11 transects (Appendix B). The maximum depth observed at this location was 1.66 feet. Measured streamflow was 11.21 cfs.

There were no direct human uses observed at this site. Additionally, there was no evidence of human use present at Site 4. No individuals were seen or found to be available for interviews near the bridge crossing at the time of the survey.

MEC staff concludes that WBCR is neither an existing nor an attainable use at this site based on the low flow shallow conditions, steep slopes, and the lack of observed WBCR uses.

V. WHOLE BODY CONTACT USE ATTAINABILITY RECOMMENDATION

MEC Staff concludes that the surveyed reaches of East Yellow Creek do not currently support WBCR uses due to the absence of observed WBCR uses or evidence of WBCR uses and the presence of steep bank slopes. Furthermore, WBCR uses in East Yellow Creek are not attainable according to depth criteria associated with ephemeral, intermittent, or low flow conditions set forth in MDNR UAA guidance.

VI. REFERENCES

Blunt, M. 2004. Code of State Regulations; Missouri Water Quality Standards, Title 10, Division 20, Chapter 7.

Missouri Department of Natural Resources. 2004. Recreational Use Attainability Analysis Protocol. Water Protection Program, Jefferson City, MO.

Figure 8. East Yellow Creek Site 4 Right Bank



Figure 9. East Yellow Creek Site 4 Downstream View

